

TRIBUTARIES TO PEND OREILLE LAKE

L.

TRESTLE CREEK

(tributary to north Pend Oreille Lake)

Summary: Trestle Creek was placed on the 1996 303(d) water quality impaired list as "Threatened". Since the USFS's 1995 Trestle Creek Watershed Improvement Project, concerns about the water quality of Trestle Creek have been greatly reduced. DEQ's assessment of the support status of the creek indicates it fully supports all of its beneficial uses. The Bull Trout Technical Advisory Team believes that Trestle Creek fish habitat and watershed conditions are good. Recommendation is to remove the stream from the 303(d) list.

1. Physical and Biological Characteristics

[The following information was summarized from the USFS's "Trestle Creek Watershed Improvement Environmental Assessment", Sandpoint Ranger District, 1995.]

Trestle Creek is an important bull trout stream and has been studied extensively. Trestle Creek epitomizes a number of high gradient forested watersheds on the northeast side of Pend Oreille Lake. Trestle Creek is a linear sub-watershed that drops 3300 feet (1000 m) in elevation from the divide across from Quartz Creek (Lightning Creek sub-watershed) to Pend Oreille Lake. The entire sub-watershed is in the Kaniksu National Forest, however, there are numerous private in-holdings along Trestle Creek at lower reaches. The sub-watershed is accessed by USFS roads #275 and #1082.

The portion of Cabinet Mountains where Trestle Creek is located has a rounded smooth topography due to scouring by the continental ice sheet movement in the past. These smooth mountain side slopes have some areas of weak to moderately incised draws. Areas of talus and avalanche chutes are also found. A few alpine glaciers were once present at higher elevations as evidenced by the cirque basins on northerly aspects.

The sub-watershed landscape is dominated by glacial scour and glacial deposition areas. In the scour areas soils tend to range from rock outcrops and predominantly shallow soils to areas of deep soils. Deposition areas have deep to very deep soils. The glacial till materials which make up the subsoil and substratum layers of the soil are weakly weathered with a high component of fragmented rock. The surface soil consists of volcanic ash 6 inches (15 cm) to 18 inches (45 cm) thick, mostly originating from Mt. Mazama in Oregon about 6,700 years ago. The underlying bedrock geology consists of hard, metasedimentary rocks of the pre-Cambrian (Belt Series). Some till layers can be very dense and, if close enough to the ash soil layer, may restrict the flow of water.

The drainage pattern of Trestle Creek is pinnate with palmate patterns in the headwaters of many tributaries. This pattern is typical of steep mountain terrain susceptible to rapid flood response. The drainage density is 0.97m of stream per km² of watershed. Areas of high drainage density are associated with high flood peaks, high sediment production, and steep hill slopes.

Annual precipitation ranges from 59 inches (1.5 m) per year at Lunch Peak, at the head of Trestle Creek, to 42 inches (1.06 m) per year near the mouth. Annual precipitation is thought to be higher along the southeast side of the valley because of higher elevations on that side and because of lake effects.

The lower portions of Trestle Creek were homesteaded at the turn of the century which involved clearing of the riparian corridor of large trees and some irrigation ditch development. Portions of the sub-watershed also burned in the 1910 fire. The stream bottom began to head cut and become entrenched as a result. This down cut in the lower two miles of Trestle Creek is still evident today. Also during this time period, 21 mining claims were patented on the ridges approximately one or two miles above Trestle Creek. Their effects are considered insignificant. Between 1910 and 1940 logging continued in the privately owned lower riparian sections of the drainage and the USFS did some logging at mid slope areas that had not been burned in 1910. This resulted in increased spring flows, reduced late season base flows, and more bedload being moved out of the tributaries and into the main Trestle Creek. After 1940 logging progressed into the upper half of the drainage. Large trees were removed from the riparian areas and slash was left to accumulate into debris dams. The stream tended to braid around these debris dams in fairly steep terrain. Due to stream bank cutting in these braided sections, bedload deposition in lower portions increased. These braids and debris dams persist today although only larger pieces of slash remain, slightly increasing stream stability.

Construction of the main road (#275) up the valley occurred throughout this period and skid roads prevalent in several sections were, and still are, sources of bedload to Trestle Creek. Because of road washouts, sometime around 1950, the main access road up the valley to the divide was moved from the south side of the creek to the north side, and the original route was abandoned. Since the road's construction on the north side, steep fill material in places has slid dozens of times adding material to the creek. Repairs were performed on the road in 1952, 1956, 1961, 1968, and 1975. This second access route to the divide was abandoned in 1982 and a third location for road #275 was constructed higher up the side slopes to avoid the unstable problem areas. Despite water bars and seeding of the abandoned second road, sediment production and water quality problems have continued to occur from plugged culverts and fill slope failures. The third road was built to access timber sales of over-mature timber in headwater areas that had been missed by the 1910 fire. Road #275 was reconstructed in 1982 for a timber sale. Reconstruction included additional culverts, a gabion wall and a treated timber wall on the fill slope at 7 miles (10.8 km).

These timbered areas led to the construction of another road (#1082) from Cochran Draw to the Round Top Mountain area. The first one half mile (1.3 km) of road #1082 is considered stable and not a threat to stream channels. However, from the half mile (1.3 km) to 5 miles (7.9 km), the road crosses many steep stream draws which have proven to be some of the most erosive landtypes found on the Idaho Panhandle National Forest. The cut bank at these crossings exposed a contact layer between permeable surface glacial tills and relatively non-permeable, highly compacted glacial tills. The contact between these two till layers is where large quantities of water move laterally underneath the soil. Many of these draws have had problems with landslides. Snow avalanches are common in the upper reaches of these draws. Bedload and debris have been filling culverts. The impermeable till layers are highly susceptible to landslides

and cut bank failures. Many of these problems still exist. Beyond 5 miles (7.9 km), road #1082 was built on slash without drainage control structures. There has been sporadic fill slope failures and at least two known stream crossing failures. Because of the lack of drainage measures, risk to stream channels is higher. Also, as the slash begins to decay, the risk of mass wasting increases. The risk of future failures of road fill and stream crossings remains extremely high.

Timber harvest between 1960 and 1985 in the Trestle Creek drainage probably would not have had an effect on water quality except for three confounding factors: 1) tributary channels had not recovered from the 1910 fire and the pre-1940 riparian logging, 2) clearcut harvests of the past did not use riparian buffers in the headwater channels, and 3) above each of the incised draws crossed by road #1082 lies clearcut harvest units adding more water yield. Most of the timber harvesting during this time period has been confined to private lands, firewood gathering and timber theft.

In 1974, a rain-on-snow event caused formation of several debris dams in the Trestle Creek sub-watershed. The IDFG and USFS removed wood from three of these dams in lower reaches in an effort to remove suspected barriers to kokanee spawners. These debris dams probably should have been left in place to control down cutting. Today, the lower reaches continue to down cut until they reach a bedrock control point. The creek then adjusts its floodplain to match its channel location. The channel attempts to carve a new floodplain for itself during high flows by eroding banks of its old floodplain. This increases bedload even further and results in a degraded channel condition that could effectively decrease late season base flows as more water flows through sorted cobbles and infiltrates instead of flowing over an armored channel bottom.

After 1985, timber harvests on National Forest lands have been salvage, commercial thinning, or shelter wood harvest of the 80 year old timber grown since the 1910 fire. Watershed monitoring has not revealed any problems associated with these activities. Roads on the other hand continue to add increased rates of bedload at various locations. There are documented problems on both the abandoned road segments of road #275 and on road #1082 as indicated previously. These problems are well documented in the Trestle Creek Watershed Improvement Environmental Assessment.

2. Pollutant Source Inventory

Point Source Discharges

No point source discharge permits have been issued for Trestle Creek.

Nonpoint Source Discharges

In 1995, the primary factor potentially affecting cold water biota and salmonid spawning is bedload. Far more bedload is being delivered to the lower reaches than can be effectively moved through the system. The watershed has always had to deal with a certain amount of bedload delivered after wildfires and periodic landslides. However, since 1900 the watershed has had additional bedload generating events including homestead clearing, riparian logging, early methods of slash disposal and road building, poor road locations, undersized culverts, clearcuts up slope of unstable road cuts, clearcuts in headwaters without buffers, rain-on-snow flood

events, and private home construction within the floodplain. Most of these events occurred before 1970. A related second factor potentially affecting aquatic life uses is a reduction in late season base flow. Stream flow timing shifts have lead to greater spring runoff and less late summer flows in reaches that are down cut.

2.a. Summary of Past and Present Pollution Control Efforts

The Trestle Creek Watershed Improvement Project was begun in 1995 by the USFS to correct watershed problems identified in the Trestle Creek Environmental Assessment. The extensive corrective measures were completed in 1996, which included road obliteration and re-contouring, culvert and bridge removal and bank stabilization.

3. Water Quality Concerns and Status

Trestle Creek was listed in the 1996 303(d) list of water quality impaired waters as "threatened". In 1994 a beneficial use reconnaissance survey was conducted in the Trestle Creek drainage by DEQ. This data was used to determine the support status of Trestle Creek using the 1996 Water Body Assessment Guidance. Results of this assessment concluded that Trestle Creek was fully supporting all of its beneficial uses. Beneficial uses of Trestle Creek include domestic and agricultural water supply, primary and secondary contact recreation, cold water biota and salmonid spawning.

In the *Lake Pend Oreille Key Watershed Bull Trout Problem Assessment*, Corsi states, "Overall, the TAT [Technical Advisory Team] believes that habitat and watershed conditions in Trestle Creek are good." He goes on to say that, "Threats to bull trout in Trestle Creek have been significantly reduced by the USFS watershed restoration project completed in 1995." (Corsi et al., 1998).

3a. Applicable Water Quality Standards

N/A

3b. Summary and Analysis of Existing Water Quality Data

The macroinvertebrate index score for Trestle Creek was 5.31 and the habitat index score was 93. Fish data indicates that salmonid spawning is fully supported.

3c. Data Gaps for Determination of Support Status

N/A

4. Problem Assessment Conclusions

There is no indication that a water quality standards violation exists or will exist in the next two years on Trestle Creek. The watershed restoration work completed by the USFS significantly reduced water quality concerns for this stream. Recommendation of this problem assessment is to remove Trestle Creek from the 303(d) list as water quality threatened.

References

Corsi, C., DuPont J., Mosier, D., Peters, R., Roper, B. 1998. Lake Pend Oreille Key Watershed Bull Trout Problem Assessment . Idaho Department of Health and Welfare, Division of Environmental Quality. Coeur d'Alene, Idaho.

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